

ABSTRACT OF THE DISCLOSURE

A silicon oxynitride film is formed on a substrate. Then, a heat treatment is performed, while keeping a surface of the silicon oxynitride film in contact with a gas containing nitrogen, such as an NO gas, to introduce at least nitrogen into the silicon oxynitride film and produce a steeply sloped distribution of nitrogen. A semiconductor film containing an impurity, such as an amorphous silicon film, is formed on the silicon oxynitride film. By forming a CMOS device with, in particular, a dual gate structure which comprises p-type and n-type MIS transistors each having a gate oxide film composed of the silicon oxynitride film and a gate electrode composed of a polysilicon film, a high driving force is provided, while boron penetration in the p-type MIS transistor is suppressed.